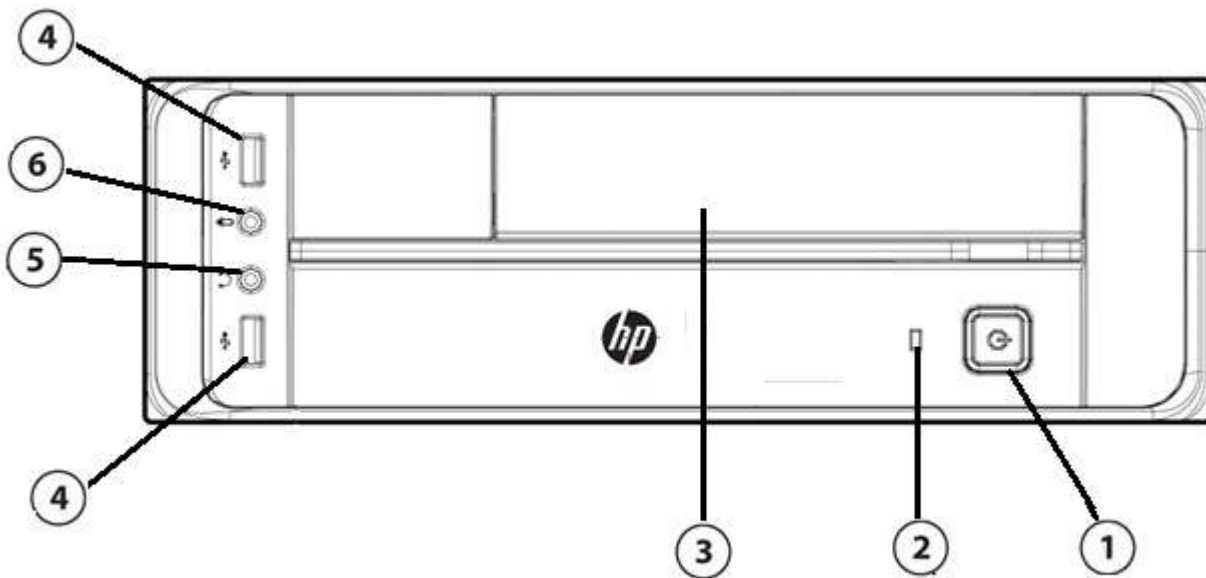


Overview

HP 402 G1 Small Form Factor Business PC

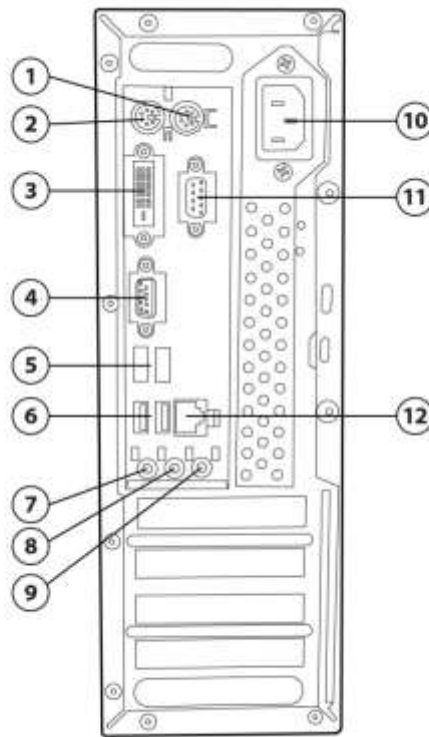


1. Power button
2. PC status LED
3. 5.25" external drive bay
4. (2) USB 2.0 ports
5. 3.5mm headphone output
6. 3.5mm microphone jack (with re-tasking)

Not Shown

- | | |
|-------|--|
| Slots | (1) PCI Express x16 graphics connector
(1) PCI Express x1 accessory connector
(2) PCI connectors
(1) USB 2.0 header for media card reader |
| Bays | (1) 3.5" internal storage drive bay |

Overview



1. PS/2 keyboard port
2. PS/2 keyboard mouse port
3. DVI-D video port
4. VGA video port
5. (2) USB 3.0 ports
6. (2) USB 2.0 ports

7. Audio line in
8. Audio line out
9. Microphone
10. Power connector
11. RS-232 serial port
12. RJ-45 network connector

Overview

At A Glance

- Expandable, upgradable chassis and system board
- Intel® H81 Express chipset supporting Intel 4th generation Core processors, featuring integrated Intel HD Graphics
- Realtek RTL8111G integrated network connection
- Up to 16GB DDR3 Synchronous Dynamic Random Access Memory (SDRAM)
- Multi-independent monitor support via VGA and DVI-D video interfaces
- DTS Sound + audio management software
- Standard 150W SFX Auto Bi-Volt power supply

NOTE: See important legal disclosures for all listed specs in their respective features sections

Standard Features and Configurable Components

OPERATING SYSTEMS

Preinstalled When Purchased

Windows 7 Professional (64-bit) (available through downgrade rights from Windows 8.1 Pro)*

FreeDOS 2.0

*This system is preinstalled with Windows 7 Professional software and also comes with a license and media for Windows 8.1 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

PROCESSORS

Intel® Core™ i3-4130 Processor*

Up to 3.4 GHz Max. Turbo Frequency (3.4 GHz base frequency)

3 MB cache, 2 cores, 4 threads

Intel HD Graphics 4400

Supports DDR3 memory up to 1600 MT/s data rate

Intel® Core™ i5-4570s Processor*

Up to 3.6 GHz Max. Turbo Frequency (2.9 GHz base frequency),

6 MB cache, 4 cores, 4 threads

Intel HD Graphics 4600

Supports DDR memory up to 166 MT/s data rate

Supports Intel vPro Technologies and Intel's Stable Image Platform Program (SIPP)

* Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers, and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Intel's numbering is not a measurement of higher performance.

CHIPSET

Intel® 8 Series (H81 Express) Chipset

GRAPHICS

Intel HD Graphics on all models (integrated on processor)

STORAGE

SATA Drives

500 GB*, 7.2K rpm, SATA 6.0 Gb/s, SMART IV, 3.5"

* For hard drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

Optical Disc Drive

SuperMulti DVD Writer*

* Double-layer discs can store more data than single layer discs. However, double-layer discs burned with this drive may not be compatible with many existing single-layer DVD drives and players. Note that DVD-RAM cannot read or write to 2.6 GB single-sided/5.2 GB double-sided - version 1.0 media. Don't copy copy-right protected materials.

Standard Features and Configurable Components

MEMORY

Type	Maximum	# of Slots
DDR3 non-ECC Up to 1600 MT/s	16 GB	2 DIMMs

NOTE: For systems configured with more than 3 GB of memory and a 32-bit operating system, all memory may not be available due to system resource requirements. Addressing memory above 4 GB requires a 64-bit operating system. Memory modules support data transfer rates up to 1600 MT/s; actual data rate is determined by the system's configured processor. See processor specifications for supported memory data rate.

NETWORKING/COMMUNICATIONS

Ethernet (RJ-45)

Realtek RTL8111G (standard)

AUDIO/MULTIMEDIA

HD audio with Realtek ALC662 codec (all ports are stereo)

Microphone and headphone front ports (3.5mm)

Line-out and Line-In rear Ports (3.5mm)

Multi-streaming capable

Internal speaker (standard)

KEYBOARDS AND POINTING DEVICES

Keyboard

HP USB Standard Value BR Keyboard

Mice

HP USB Mouse

PORTS

I/O Ports – Standard

USB 2.0	2 (front); 2 (rear); 1 (internal)
USB 3.0	2 (rear)
Serial (RS-232)	1
PS/2	1 keyboard (purple) 1 mouse (green)
Video	1 VGA 1 DVI

NOTE: When configured with an Intel Celeron, Pentium or 4th generation Intel Core i3 CPU only two of the available video output ports are active

Standard Features and Configurable Components

Audio	Front: headphone/mic Rear: line in/out/mic 3.5mm diameter
RJ-45 Network Interface	1
<u>I/O Ports – Optional</u>	
Parallel	1
PCI Express Mini Card	N/A
MXM Graphics	N/A
mSATA	N/A
PCI Express x1 (v2.0)	1 2.5" low profile 6.6" length 10W max. power
PCI Express x16 (v3.0)	1 2.5" low profile 6.6" length 35W max. power
PCI (v2.3)	2

BAYS

5.25" external DVD	1
3.5" internal storage drive	1

SERVICE AND SUPPORT

On-site Warranty ¹: One-year (1-1-1) limited warranty delivers one year of on-site, next business day ² service for parts and labor and includes free telephone support ³ 24 x 7. One-year onsite and labor are not available in all countries. Service offers terms up to 5 years by choosing an optional Care Pack. To choose the right level of service for your HP product, visit HP Care Pack Central: www.hp.com/go/cpc

NOTE 1: Terms and conditions may vary by country. Certain restrictions and exclusions apply. Other warranty variations may be offered in your region.

NOTE 2: On-site service may be provided pursuant to a service contract between HP and an authorized HP third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.

NOTE 3: Technical telephone support applies only to HP-configured and third-party HP qualified hardware and software. Toll-free calling and 24 x 7 support may not be available in some countries.

Technical Specifications – Operating Systems and Software

OPERATING SYSTEMS

Preinstalled Windows 7 Professional (64-bit) (available through downgrade rights from Windows 8.1 Pro)*
FreeDOS 2.0

For all Preinstalled operating systems HP provides Microsoft WHQL certified (where applicable) drivers on www.hp.com at the time of product announcement.

Web Support None

For all Supported operating systems HP performs testing of the OS, and makes available all HP value add software (OS dependent). Certified drivers are made available on www.hp.com within 30 days of product announcement.

Certified None

For all Certified operating systems HP will submit hardware to the operating system vendor for testing and certification. All drivers would be obtained from the operating system vendor, not supplied by HP. Certification will be posted by the operating system vendor.

*This system is preinstalled with Windows® 7 Professional software and also comes with a license and media for Windows 8.1 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

SOFTWARE COMPONENTS AND APPLICATIONS WITH WINDOWS

Included	Windows 7	Windows 8.1
Microsoft Products	Buy Office	Buy Office

¹ Available via download

² Requires an Internet connection to HP web-enabled printer and HP ePrint account registration. For HP ePrint details, see www.hp.com/eprint)

Technical Specifications - Graphics

Intel HD Graphics		
VGA Controller	Integrated	
Bus Type	N/A	
RAMDAC	N/A	
Memory	<p>Intel graphics do not have dedicated memory but utilizes some of the computer's system memory. The amount of memory used for graphics depends on the amount of system memory installed, BIOS settings, operating system, and system load. 32 MB is pre-allocated for graphics use at system boot time. Additional memory can be allocated at boot time by the BIOS for PAVP (Protected Audio Video Playback) support for playback of protected video content.</p> <p>Additional memory is allocated for graphics as needed using Intel's Dynamic Video Memory Technology (DVMT), to provide an optimal balance between graphics and system memory use.</p>	
Maximum Graphics Memory	Microsoft Windows 7	Windows 8.1
	Up to 1.7GB	Up to 1.8GB
	Note: the actual amount of maximum graphics memory can be less than the amounts listed above depending upon your computer's configuration.	
Maximum Color Depth	32 bits/pixel	
Graphics/Video API Support	<p>4th Generation Core processors*:</p> <ul style="list-style-type: none"> The Processor Graphics contains a refresh of the seventh generation graphics core enabling substantial gains in performance and lower power consumption. Up to 16 EU support. Next Generation Intel Clear Video Technology HD Support is a collection of video playback and enhancement features that improve the end user's viewing experience <ul style="list-style-type: none"> Encode/transcode HD content Playback of high definition content including Blu-ray Disc Superior image quality with sharper, more colorful images DirectX Video Acceleration (DXVA) support for accelerating video processing <ul style="list-style-type: none"> Full AVC/VC1/MPEG2 HW Decode Advanced Scheduler 2.0, 1.0 Windows 7, Windows 8.1, Linux OS Support DirectX 11.1 OpenGL 4.0 Open CL 1.2 <p>* Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers, and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel®</p>	

Technical Specifications - Graphics

64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Intel's numbering is not a measurement of higher performance.

Supported Display Resolutions and Refresh Rates

Note: other resolutions may be available but are not recommended as they may not have been tested and qualified by HP

Resolution	Refresh Rates
800x600	60 Hz
1024x768	60 Hz
1152x864	60 Hz
1280x600	60 Hz
1280x720	60 Hz
1280x800	60 Hz
1280x960	60 Hz
1280x1024	60 Hz
1360x768	60 Hz
1366x768	60 Hz
1400x1050	60 Hz
1440x900	60 Hz
1600x900	60 Hz
1600x1200*	60 Hz
1680x1050	60 Hz
1920x1080	60 Hz
1920x1200*	60 Hz
1920x1440*	60 Hz
2560x1440*	60 Hz
2560x1600*	60 Hz

* Only supported on displays connected to the external DisplayPort connector.

Technical Specifications – Hard Disk and Solid State Storage

Introduction:

HP Serial Advanced Technology Attachment (SATA) Hard Drives maximize the performance of HP Business PCs by providing the technologies to meet your increasing storage demands with high-capacity drives offering superior reliability and performance.

SATA provides faster data transfer speeds, better system cooling airflow, more bandwidth, more headroom for speed increases in future generations and better data integrity. A next-generation technology, the SATA interface connects hard drives to the PC platform enabling easy aggregation of multiple hard drives into a single PC. This offers you the additional benefits of dedicated bandwidth, the ability to more easily identify device failures and scalability. The HP 402 G1 Series Business PC supports the latest SATA 6.0Gb/s specification.

SMART IV Technology

Self Monitoring Analysis and Reporting Technology (SMART) hard drive technology allows hard drives to monitor their own health and to raise flags if imminent failures are predicted. If the drive determines that a failure is imminent, the SMART hard drive technology enables the intelligent manageability or management software to generate a fault alert. While the current versions of SMART hard drives do a good job monitoring the data on the hard drive media, the ever increasing emphasis on reliability and quality has promoted HP to implement SMART IV technology which constantly checks that the data flow from host interface to media and media to host interface is not compromised. This is accomplished by inserting a 2 byte parity code into every 512 byte block in the data path of the hard drive's Cache RAM. This unique parity checking performed by HP's SMART IV technology hard drives, allows for more complete error detection coverage encompassing the entire data path between the host and the hard drive.

Smart IV is also known as IOEDC: I/O Error Detection Code.

Native Command Queuing

NCQ or Native Command Queuing is a SATA protocol extension that allows the hard drive to have several write or read commands outstanding at the same time. In contrast, normal non-queued operation requires each command to be completed before the next command is issued by the host system. Queuing allows the drive to complete the commands in the order that allows for best overall throughput. It also involves an advanced method of transferring data to or from the host, called First Party Direct Memory Access (FPDMA), which allows the hard drive and the host controller to manage the data transfers for multiple outstanding commands, without involving the host processor. NCQ can contribute to better performance but the results are dependent on many factors, including the access patterns of the various applications and operating system functions that are initiating drive accesses. Enabling NCQ features in the hard drive requires AHCI support from the host system BIOS, controller, and driver. AHCI support is typically implemented in RAID configurations.

* For hard drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

HP 500-GB* 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive

Capacity	500,107,862,016 bytes
Rotational Speed	7,200 rpm
Interface	Serial ATA 3.0 (6.0 Gb/s)

Technical Specifications – Hard Disk and Solid State Storage

Buffer Size	16 MB	
Logical Blocks	976,773,168	
Seek Time (typical reads, includes controller overhead, including settling)	Single Track:	2.0 ms
	Average:	11 ms
	Full-Stroke:	21 ms
Height (nominal)	1 in/2.54 cm	
Width (nominal)	Media diameter: 3.5 in/8.89 cm	
	Physical size: 4 in/10.2 cm	
Operating Temperature	41° to 131° F (5° to 55° C)	

* For hard drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

Technical Specifications - Removable Storage

HP SuperMulti DVD Writer Drive*			
Height	5.25-inch, half-height, tray-load		
Orientation	Either horizontal or vertical		
Interface type	SATA		
Dimensions (W x H x D)	5.8 x 1.7 x 6.9 in (14.8 x 4.2 x 17.5 cm) max		
Weight (max)	2.1 lb (950g)		
Performance	CD-ROM Read Access	Random	120 ms typical
		Full Stroke	200 ms typical
	DVD-ROM Read Access	Random	130 ms typical
		Full Stroke	240 ms typical
	CD Media Read Transfer	CD-ROM, CD-R Read	Up to 6000 KB/s (40X)
		CD-RW Read	Up to 4800 KB/s (32X)
		Digital/Analog Audio Playback	Up to 2400 KB/s (16X)
		Digital Audio Extraction (CD-ROM, CD-R)	Up to 6000 KB/s (40X)
		Digital Audio Extraction (CD-RW)	Up to 4800 KB/s (32X)
		Video CD Playback	Up to 2400 KB/s (16X)
	DVD Media Read Transfer	DVD-ROM SL Read	Up to 21600 KB/s (16X)
		DVD-ROM DL Read	Up to 10800 KB/s (8X)
		DVD Video Playback	Up to 10800 KB/s (8X)
		DVD Video SL (other than playback)	Up to 21600 KB/s (16X)
		DVD Video DL (other than playback)	Up to 10800 KB/s (8X)
		DVD+/-R	Up to 21600 KB/s (16X)
		DVD+/-R DL	Up to 10800 KB/s (8X)
		DVD+/-RW	Up to 10800 KB/s (8X)
	CD Media Write Transfer	DVD-RAM	Up to 6750 KB/s (5X)
		CD-R	Up to 6000 KB/s (40X)
		CD-RW	Up to 600 KB/s (4X)
		CD-RW (High speed)	Up to 1500 KB/s (10X)
	DVD Media Write Transfer	CD-RW (Ultra speed)	Up to 3600 KB/s (24X)
		DVD+/-R	Up to 21600 KB/s (16X)
		DVD+/-R DL	Up to 10800 KB/s (8X)
		DVD+RW	Up to 10800 KB/s (8X)
		DVD-RW	Up to 8100 KB/s (6X)
		DVD-RAM	Up to 6750 KB/s (5X)

Technical Specifications - Removable Storage

Media Compatibility	Media	Read	Write
	CD-ROM	Yes	No
	CD-R	Yes	Yes
	CD-RW	Yes	Yes
	DVD-ROM	Yes	No
	DVD-ROM DL	Yes	No
	DVD-RAM	Yes	Yes
	DVD+/-R	Yes	Yes
	DVD+/-R DL	Yes	Yes
	DVD+/-RW	Yes	Yes
Power Supply	Source	SATA DC power receptacle	
	DC Power Requirement	5 VDC \pm 5%	100 mV ripple p-p
		12 VDC \pm 5%	120 mV ripple p-p
	DC Current	5 VDC	10A (max.)
		12 VDC	10A (max.)
		Total Drive Power (Standby Mode)	< 10W
Rear Panel	SATA Power Connector, 15-pin SATA Data Connector, 7-pin Markings to identify each connector		
Environmental conditions (all conditions non-condensing)	Operating Temperature	41° to 122° F (5° to 50° C)	
	Storage Temperature	–22° F to 140° F (–30° C to 60° C)	
	Relative Humidity	10% to 90%	
	Maximum Wet Bulb Temperature	86° F (30° C)	

* Double-layer discs can store more data than single layer discs. However, double-layer discs burned with this drive may not be compatible with many existing single-layer DVD drives and players. Note that DVD-RAM cannot read or write to 2.6 GB single-sided/5.2 GB double-sided - version 1.0 media. Don't copy copy-right protected materials.

Technical Specifications – Memory

System Memory Support

The HP 402 G1 Small Form Factor Business PC supports the 4th generation Intel® Core™ processor family. Based on a new PC micro-architecture, the processor is designed for a two-chip platform consisting of a processor and Platform Controller Hub (PCH). Unlike previous generations, the 4th generation Intel® Core™ processor includes an Integrated Memory Controller (IMC). The IMC supports DDR3/DDR3L protocols with two independent, 64-bit wide channels each accessing one or two DIMMs.

- Two channels of non-ECC DDR3/DDR3L unbuffered dual in-line memory modules (UDIMM) or DDR3/DDR3L unbuffered small outline dual in-line memory modules (SO-DIMM) with a maximum of two DIMMs per channel
- Single-channel and dual-channel memory organization modes
- Data burst length of eight for all memory organization modes
- Memory data transfer rates of up to 1600 MT/s; actual supported data transfer rate determined by the configured processor.
- 64-bit wide channels
- DDR3/DDR3L system memory I/O voltage of 1.5V
- Theoretical maximum memory bandwidth of:
 - 21.3 GB/s in dual-channel mode assuming 1333 MT/s
 - 25.6 GB/s in dual-channel mode assuming 1600 MT/s

Platform Memory Support

- The Small Form Factor (SFF) platform supports up to four (2) industry-standard DDR3-SDRAM DIMMs.

CAUTION: You must shut down the computer and disconnect the power cord before adding or removing memory modules. Regardless of the power-on state, voltage is always supplied to the memory modules as long as the computer is plugged in to an active AC outlet. Adding or removing memory modules while voltage is present may cause irreparable damage to the memory modules or system board.

NOTE: For systems configured with more than 3 GB of memory and a 32-bit operating system, all memory may not be available due to system resource requirements. Addressing memory above 4 GB requires a 64-bit operating system.

Technical Specifications – Networking/Communication

Realtek RTL8111G Network Adapter

Connector	RJ-45	
System Interface	Integrated on PCA	
Controller	Realtek RTL8111G Gigabit Ethernet Controller	
Memory	16 KB FIFO packet buffer memory	
Data rates supported	10/100/1000 Mbps	
IEEE Compliance	802.1P 802.1Q 802.3 802.3ab 802.3az 802.3u	
Bus architecture	PCI Express	
Data transfer mode	PCIe-based interface for active state operation (S0 state)	
Power requirement	Requires 3.3V and 1V or just 3.3V with integrated regulators Power consumption 0.425 W	
Network transfer mode	Full-duplex	
	Half-duplex (not supported for the 1000BASE-T transceiver)	
Network transfer rate	10BASE-T (half-duplex) 10 Mbps	
	10BASE-T (full-duplex) 20 Mbps	
	100BASE-TX (half-duplex) 100 Mbps	
	100BASE-TX (full-duplex) 200 Mbps	
	1000BASE-T (full-duplex) 2000 Mbps	
Environmental	Operating Temperature:	32° to 158° F (0° to 70° C)
	Operating Humidity:	60% RH
Management	WOL, auto MDI crossover, PXE, Multi-port teaming, Advanced cable diagnostic	

Technical Specifications – Networking/Communication

High Definition Audio	
Type	Integrated
HD Stereo Codec	Realtek 2-channel ALC221 codec
Audio I/O Ports	Front microphone-In (150-K ohm Input Impedance)
	Rear Line-In/Microphone input (150-K ohm Input Impedance, function is configurable by audio driver)
	Rear Line-Out* (190 ohms Output Impedance, expects at least a 10-K ohm load)
	Front Headphone-Out (0.5 Ohm Output Impedance, expects at least a 32 ohm load) Front Microphone/Headphone jack is re-task able to provide Microphone input, line-in or Headphone output to support connecting two headphones to the front of the system. When configured as a second front headphone output, both front headphone outputs are always driven with the same signal.
	All ports are 3.5mm
Internal Speaker Amplifier	1.5W amplifier for the internal speaker only. External speakers must be powered externally. Rear Line-in audio port is re-taskable as either Line-in or Microphone-In.
Multi-streaming Capable	Multi-streaming can be enabled in the Realtek control panel to allow independent audio streams to be sent to/from the front and rear jacks.
Sampling	8 kHz - 192 kHz
Wavetable Syntheses	Yes – Uses OS soft wavetable
Analog Audio	Yes
# of Channels on Line-Out	Stereo (Left & Right channels)
Internal Speaker	Yes
External Speaker Jack	Yes

Technical Specifications - Input/Output Devices

HP USB Keyboard		
Physical characteristics	Keys	104, 105, 106, 107, 109 layout (depending upon country)
	Dimensions (L x W x H)	18.12 x 6.47 x 0.96 in (46.03 x 16.43 x 2.44 cm)
	Weight	2 lb (0.9 kg)
Electrical	Operating voltage	+ 5VDC \pm 5%
	Power consumption	50-mA maximum (with three LEDs ON)
	System interface	USB Type A plug connector
	ESD	CE level 4, 15-kV air discharge
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Microsoft® PC 99 - 2001	Functionally compliant
Mechanical	Keycaps	Low-profile design
	Switch actuation	55-g nominal peak force with tactile feedback
	Switch life	20 million keystrokes (using Hasco modified tester)
	Switch type	Contamination-resistant switch membrane
	Key-leveling mechanisms	For all double-wide and greater-length keys
	Cable length	6 ft (1.8 m)
	Microsoft PC 99 - 2001	Mechanically compliant
Environmental	Acoustics	43-dBA maximum sound pressure level
	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	20% to 80% (non-condensing at ambient)
	Operating shock	40 g, six surfaces

Technical Specifications - Input/Output Devices

	Non-operating shock	80 g, six surfaces
	Operating vibration	2-g peak acceleration
	Non-operating vibration	4-g peak acceleration
	Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
	Drop (in box)	30 in (76.2 cm) on concrete, 16-drop sequence
Approvals	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, KC	
Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	
Kit contents	Keyboard	Installation Guide
	Warranty Card	Safety and Comfort Guide

HP USB Mouse

Dimensions (H x L x W)	1.5 x 4.5 x 2.5 in (3.7 x 11.5 x 6.3 cm)
Weight	0.22 lb (0.10 kg)
Cable length	70.9 in (180 cm)
System requirements	Available USB port

Technical Specifications – Power

Unit Environment and Operating Conditions

General Unit Operating Guidelines

- Keep the computer away from excessive moisture, direct moisture and the extremes of heat and cold, to ensure that unit is operated within the specified operating range.
- Leave a 10.2 cm (4 in) clearance on all vented sides of the computer to permit the required airflow.
- Never restrict airflow into the computer by blocking any vents or air intakes.
- Do not stack computers on top of each other or place computers so near each other that they are subject to each other's re-circulated or preheated air.
- Occasionally clean the air vents on the front, back, and any other vented side of the computer. Lint, dust and other foreign matter can block the vents and limit the airflow.
- If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above will still apply.

Temperature Range	Operating: 50° to 95° F (10° to 35° C)* Non-operating: –22° to 140° F(–30° to 60° C)
Relative Humidity	Operating: 10% to 90% (non-condensing at ambient) Non-operating: 5% to 95% (non-condensing at ambient)
Maximum Altitude (unpressurized)	Operating: 10,000 ft (3048 m) Non-operating: 30,000 ft (9144 m)

*Operating temperature is de-rated 1.0 deg C per 300 m (1000 ft) to 3000 m (10,000 ft) above sea level, no direct sustained sunlight. Maximum rate of change is 10 deg C/Hr. The upper limit may be limited by the type and number of options installed.

Power Supply

Standard Efficiency	150W SFX Auto Bi-Volt
Operating Voltage Range	103/253 VAC
Rated Voltage Range	115/230 VAC
Rated Line Frequency	50/60 Hz
Operating Line Frequency	47 – 63 Hz
Rated Input Current	4A/115V, 2A/230V
Current Leakage (NFPA 99)	< 3.5mA @ 253V
Power Supply Fan	80mm Fan
Power cord length	6.0 ft. (1.83 m)
External Power Adapter	
Dimensions	N/A
Total Cord Length	N/A

Technical Specifications – Weights & Dimensions

Weights & Dimensions

(configured with 1 HDD & 1 ODD)

Chassis (W x H x D)	295 x 95 x 390 mm 11.61 x 3.74 x 15.35 in
System Weight	5.6 kg 12.35 lb
Packaged (H x W x D)	220 x 500 x 590 mm 8.66 x 19.68 x 23.23 in
Shipping Weight	Est. = 8.88 kg 19.58lb

Technical Specifications – Miscellaneous Features

Management Features

- Advanced Configuration and Power Management Interface (ACPI). Allows the system to wake from a low power mode. Controls system power consumption, making it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system.
- Intel Wired for Management support; industry wide initiative to make Intel architecture based PCs, servers and mobile computers more inherently manageable out-of-the-box and over the network
- Dual State Power Button; acts as both an on/off button and a suspend-to-sleep button

Additional Features

	Description
Towerable Orientation	Product can be oriented as either a desktop (horizontal) or a tower (vertical)
Drive Lock	Implementation of the industry standard ATA Security feature set. When enabled, it prevents software access to user data on the drive until one or two user-defined passwords are provided.

After-Market Options (availability may vary by region)

Data Storage Drives and Accessories

Part Number

HP 500-GB* 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive

QK554AA

* For hard drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

Input Devices

Part Number

HP USB Keyboard

QY776AA

HP USB Keyboard and Mouse Kit

B1T09AA

HP USB Mouse

QY777AA

System Memory

Part Number

HP 4GB DDR3-1600 (PC3-12800) DIMM

B4U36AA

NOTE: For systems configured with more than 3 GB of memory and a 32-bit operating system, all memory may not be available due to system resource requirements. Addressing memory above 4 GB requires a 64-bit operating system.

Business Monitors

Part Number

HP ProDisplay P191

C9E54AA

HP ProDisplay P201

C9F26AA

HP ProDisplay P221

C9E49AA

HP EliteDisplay E201

C9V73AA

HP EliteDisplay E221

C9V76AA

HP EliteDisplay E231

C9V75AA

HP LA2405x

D0P36AA

HP EliteDisplay E271i

D7Z72AA

HP EliteDisplay E221c

D9E49AA

HP L2206tm

B0L55AA

LANDesk Software (E-Delivery)

Contact your HP representative for available options.

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